ARTICLE KNOWLEDGE FOR POLICY 15 FEBRUARY 2016

Examples of valorisation

VALORISATION PUBLIC ENGAGEMENT EVALUATION

Home . Knowledge for policy . Examples of valorisation

Valorisation or knowledge exchange can take many different forms. We give many examples of valorisation in this chapter, to illustrate the wide range of possibilities and to inspire other researchers to follow suit.

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The approach taken to valorisation in any given case will depend on established practice in a given discipline, organization or research programme, and also on the relations established with the field of application or with stakeholders and on the expertise and skills of researchers.

Practical experience shows that it is appropriate to divide the various forms of valorisation into the following three categories, which will be illustrated below with the aid of examples:

- · Valorisation and stakeholders
- · Valorisation and the relation between research and practice
- Valorisation and the type of knowledge involved.

The practical examples given clarify the significance of the approach to valorisation taken in each case, and also shows why it is appropriate to speak of valorisation, or knowledge exchange, in each case.

In some of the examples given, valorisation is key to the research, not just a by-product. This does not necessarily mean that all researchers involved realise that they are actively involved in valorisation. Some researchers simply regard all their activities as research. Others regard the work they devote to valorisation as an extra, something for which they may get little recognition but which adds greatly to their job satisfaction.

Valorisation and stakeholders

It is often said in general terms that valorisation is required "to meet the needs of society". In many cases, however, researchers have interactions with very specific stakeholders or users.

Valorisation may be regarded as a chain, which may be long and may consist of many links. It may be a long way from the ultimate knowledge user to the person with whom the researcher is in contact.

Let's remain close to the researcher's immediate environment, and to consider who he collaborates with and whom he wants his results to reach. This leads to definition of the following target groups:

- Professional users
- Students and teachers
- Interest groups
- Field experts
- Interested laypersons
- Other academics
- The general public

Professional users

Many researchers collaborate with, or aim at, professional users who may range from civil servants writing advisory reports on certain aspects of policy to staff in a day care centre for whom training courses have been developed on the basis of recent research.

Postacademic education

Postacademic education as provided in Dutch faculties of Law is an institutionalized form of valorisation aimed at professional users. Practicing lawyers have a statutory obligation to take regular follow-up courses as part of their continuing education. Faculties of Law in Dutch universities provide some of these courses, including lectures on current legal trends, courses dealing with specific topics in depth and specialist training courses. These postacademic education courses not only give the lecturers an opportunity to pass new knowledge and insights on to practicing lawyers but also refresh their own knowledge of current events and issues of importance in day-to-day practice. In other words, in these courses knowledge is exchanged both

NWO's CATCH programme

The objective of the MWO CATCH (Continuous Access To Cultural Heritage) programme is to provide access to information about the cultural heritage of the Netherlands in digital form. IT and data visualization researchers work together in this programme with Dutch cultural heritage institutions such as the Koninklijke Bibliotheek (Royal Library), the National Archives and the Audiovisual Foundation (Stichting Beeld en Geluid). The programme offers researchers the opportunity to investigate possible new applications and develop innovative solutions. The overall result of the programme is to ensure better access to the collections that form part of the Dutch cultural heritage for curators as well as for members of the public.

Students and teachers

Students, teachers and schools represent an important target group for valorisation. Typical products are an education kit for secondary school pupils, a module for primary school children and a textbook

Researchers generally transfer knowledge to students via their teachers and/or via study material. This is a very specific

De <u>Vreedzame School</u> (The Peaceful School) is a programme for primary schools designed to promote social competencies and a feeling for democratic citizenship in young children. It consists of training courses for the teachers, education kits for each year of the primary school and modules for training pupils to be class mediators. This programme was developed and introduced because it is now a statutory duty of all Dutch schools to play an active role in promoting citizenship and social cohesion. Micha de Winter, professor of Social Education and Youth Policy at the University of Utrecht, and his colleagues

Interest groups

Researchers regularly work with or for interest groups, which in some cases play much the same role in relation to researchers as professional users do. These groups deserve separate attention, however, because they often consist partly or completely of volunteers who, while they may be very committed, do not always have the same infrastructure as professional organizations.

scientific advice and mediation bureau at the University of Groningen with complaints about the noise made at night by the wind turbines that had been erected in their neighbourhood. Research showed that the officially approved models that had been used to calculate the noise nuisance produced by such turbines, and as a basis for the decision tistall them, were longer able to give an accurate prediction of the behaviour of the wind turbines currently in use, which are much higher than the wind tends to die down at ground level. As a result, the rotation of the wind turbines generates high levels of noise that are not damped by the low winds at ground level. This finding has a substantial effect. The Dutch government has decided [2] to modify the official model for predicting the noise that will be produced by planned wind turbines on the basis of the research performed by the science shop at the University of Groningen. This modification would not have been possible if there had been no facilities for members of the public to place this problem on the scientific research agenda. This study not

Field experts

Many researchers work together with, or deliver output to, field experts. Many of these experts do not have a scientific training or even professional involvement with the topic in question, but derive their expertise and their commitment to this topic largely from experience and from their own personal situation. Parents of growing children provide a good example of this group.

Experience shows that publishers are often on the look-out for social sciences researchers to write books dealing with topics of interest to a wider audience. Such publishers may be able to help researchers to make contact with the above-mentioned target group.

Bringing up teenagers

wrote the book Waarom tieners zo irritant kunnen zijn. en hoe je daar als ouder mee kunt leren leven (Why teenagers can be so irritating, and how parents can learn to cope with them) [4]. She stated that this book would be useful to various (hbo), but her principal target group is parents of teenage children. She helps these parents to understand their children's behaviour, and indicates ways of discussing important issues with them. Parents of adolescent children are obviously the best

Interested laypersons

The general public can be regarded as a collection of interested laypersons. Practically everyone has a personal (not professional) interest in a wide range of subjects, and a wide range of media cater to such interests. Good examples are popular science publications such as the New Scientist, the science page of a newspaper or science programmes on radio and TV. There are however many other ways of reaching this target group, of which two are mentioned below.

Kieskompas (the Electoral Compass) is designed to help Dutch voters who are not sure which party to support. It is best known for the online questionnaires it produces shortly before each general election. It was founded by Andre Krouwel, a former earcher at VU University Amsterdam, who is now the director of Kieskompas.

TV programme

Theologian/philosopher Theo de Wit from Tilburg University [5] spoke on tolerance on the Lux TV programme produced by the Dutch religious broadcasting channel IKON. [6] This is one of the topics he deals with as a researcher. He helped viewers

a number of current trends by focusing on the concept of tolerance and showing how it applies to recer

Other academics

Academics in disciplines other than the researcher's peer group represent an unusual target group. Some valorisation programmes mention this explicitly as a target group for valorisation, while others do not. If we regard the valorisation process as a chain with a number of links, it would seem perfectly acceptable to consider "other academics" as one of these links. The objective here is to transfer or translate knowledge so as to support progress in another discipline. This happens in computer sciences and electrical engineering, for example.

Software problems at CERN

he software of the Large Hadron Collider at CERN just outside Geneva was behaving erratically in 2011. CERN's own programmers were unable to track down the problem, and called in the help of IT specialists from Eindhoven University of Technology, including Jeroen Keiren [7]. They examined the control software and managed to locate the problems in the system's twenty to thirty thousand separate components [8]. The CERN software represented a practical problem on which the Complex Hierarchical Systems) project, for which researcher Tim Willemse (also from Eindhoven University of Technology) has

The general public

Is the general public a target group of valorisation? It could be argued that it is, because much research does generate benefits for the general public. It could also be argued that it isn't, because there are usually many intermediary links, knowledge middlemen", between the researcher and the end-user of knowledge. Researchers who transfer their" knowledge to meet the needs of the general public generally pass their knowledge on in the first instance to organizations that represent or serve the general public. Researchers who state that their research serves the needs of society often forget to explain precisely what research results are of use to society, in what way they are useful and via which channels the knowledge in question is transferred.

State Commission for review of the Dutch constitution

The State Commission for review of the Dutch Constitution
The State Commission headed by Judge Wilhemina Thomassen [9] was mandated to deliver recommendations on the
desirability of amending the Dutch Constitution, Most of the members of the Commission were academics attached to Dutch
universities. It goes without saying that the recommendations delivered by the Commission had an impact on all Dutch
citizens. Nevertheless, the Commission submitted its opinion to the Dutch cabinet (the fourth cabinet headed by Jan Peter Balkenende). In this context, the cabinet can be regarded as a professional user of the knowledge developed by the Commission. The Commission's recommendations were debated by the First and Second Chamber of the Dutch Parliament, who can also be regarded as professional user groups in this context.

Valorisation and the relation between research and practice

When scientists talk about their research, they often refer to the aspects they consider to be important, such as social inequality, European regulations and legislation or the inheritance of congenital heart disease. Even though there may be a great distance between valorisation and the scientist's day-to-day research activities, many scientists do have the ambition to improve society through their research.

Valorisation is more than the occasional interesting blog. On the other hand, society does not dictate the research agenda. The reality lies somewhere in between these two extremes, and comes down to valorisation as an interactive

How does the researcher interact with the world of practice? The following possibilities may be distinguished:

- · Research aimed at improving an existing situation
- Using research results in a different context Collaboration with field workers for the purposes of development and testing
- Intervening in an existing situation (action research)

Research aimed at improving an existing situation

No matter how close the relationship between research and practice, the objective of academic research is its scientific value, the fundamental understanding of the real world it generates.

Nevertheless, the use to which research results can be put is certainly a relevant consideration. Many major research programmes have the objective of improving existing situations through research. Research funded by the FES (Fonds $Economische \ Structuur versterking), \ a \ major \ Dutch \ government \ initiative \ aimed \ at \ reinforcing \ the \ country's \ economic$ infrastructure, financed from the income derived from the natural gas reserves discovered in the Dutch province of Groningen, is a good example of this, as are many thematic research programmes financed by NWO. Much medical research also falls within what is known as "Pasteur's quadrant."

hand quadrant, which contains user-inspired basic research, Pasteur's quadrant, since most of the work performed by the great. French researcher Louis Pasteur was fundamental research needed to solve very practical problems.

PASTEUR'S QUADRANT



USE-INSPIRED RESEARCH: to pursue fundamental understanding but motivated by a question of use

Perianal dermatitis

Immunologist Jon Laman from the University of Groningen [10] studies perianal dermatitis together with his colleagues Johanneke van Embden and Leo van Lieshout. This complaint is a form of skin irritation that can occur in patients ter major bowel surgery, in children after radiotherapy for cancer and in healthy babies who suffer from nappy rash. It can cause a great deal of pain and other complaints that have an adverse effect on the quality of life, leading to a lot of unhappiness for patients and the parents of young children. Until recently, there was no known cure for this complaint. Research by Jon Laman and his team [11] into the precise causes of perianal dermatitis and possible treatments of this condition led not only to a number of scientific publications but also to the development of a cream that provides an effective treatment for severe irritation. This cream contains protease inhibitors, which can be obtained from potatoes. This led Jon Laman and his colleagues to establish a working relationship with AVEBE, an international company with headquarters in the north of the Netherlands that produces starch and a wide range of other products, all derived from potatoes.

The Groentefroetels

Communication scientist Simone de Droog from Radbout University Nijmegen [12] made the growing problem of obesity in children the subject of her doctoral study. She examined the extent to which the media environment can encourage healthy eating habits in children. Her research led not only to a number of scientific publications and a PhD thesis, but also to the Groentefroetels [14]-humanized animal characters, Caterpillar, Rabbit, Monkey and Tortoise, who love eating fruit and vegetables. The Groentefroetels figure in stories that parents and teachers can read to children, and their exploits encourage the children to eat fruit and vegetables themselves. For example, Rabbit made a bold attempt to rescue a friend after he had been strengthened by eating carrots, and Caterpillar grew so long after eating apples that she could hang her balloons up high. Instead of trying to teach these young children to eat "healthy" food – a difficult concept at their age – the Groentefroetels provide them with role models who are big, strong and smart, characteristics that do appeal to them.

Using research results in a different context

This can often yield knowledge or insights that can help other researchers outside the peer community, even though that may not have been among the initial objectives of the study. Researchers may at a given moment see scope for application of their results in another context, or feel motivated to take an interest in another topic.

Magnetic cooling

Professor Ekkes Brück from Delft University of Technology [13] has been studying a new class of magnetocaloric materials – materials that change temperature when exposed to a varying magnetic field. He realized that these materials would provide a good alternative to the gases normally used as coolants in refrigerators and other cooling systems [16]. Not only do magnetocaloric materials have the right properties for use in cooling systems, but they are also environmentally friendlier and can be used to make a much quieter refrigerator. He and his group have made a fundamental study of the mechanism of action of magnetic cooling systems, in collaboration with the chemical giant BASF and with funding from the Dutch fundamental materials research foundation FOM. The study also focused on the composition of the alloys that could be obtained by the righted required processors and that group the host cooling coulds.

The end of the world

aura van Broekhoven is a researcher and lecturer in the faculty of Archaeology at Leiden University, and Curator of the Centra and South American collection at the National Museum of Ethnology in Leiden [14]. She has studied the evidence for the commonly held belief that the Mayas had predicts did not entire the world. It has been suggested that the Mayan calendar predicts that the world will come to an end on 21 December 2012. She gave her knowledge of the Mayan calendar the maximum possible impact by arranging an exhibition at the Museum of Ethnology [15], writing a book and making a number of other contributions in the media. Her basic message is very simple: the Mayas never predicted the end of the world.

Collaboration with field workers for the purposes of development and testing

Researchers often study existing situations in the field. In such cases, they often need to collaborate with field workers. This type of collaboration has benefits for both parties. The researchers get better access to the situation on the ground, which enables them to understand local issues better. And the field workers are more than just representatives of the test subjects or managers of experimental plots, but make an active contribution to the study.

Understandable language

examining existing documents in situations where it is very important that the language used should be very clear and easy to understand. The objects of his research included such texts as medical product information leaflets and letters to members of the public about mortgages and pensions.

The Dutch ministry of Health, Welfare and Sport, the pharmaceutical industry, patient organizations and the Dutch consumer protection organization Consumentenbond attach great importance to good product information. Lee Lentz has links with all these parties, and believes that he could not do his work properly without them. While he may claim to know everything about what makes written communication readable, the other stakeholders have their own wishes and requirements. They can test-read new documents, and know what requirements medical product information leaflets have to meet if the medication in question is to be registered for use.

Leo Lent's experience of this type of collaboration was useful when he applied for research funding from NWO within the framework of their Understandable Language programme [22]. Members of the public often have difficulty understanding mortgages and pensions. The language used to explain such matters is often not as clear as it should be, and people are often confused by the sheer number of letters, brochures, offers, advisory talks and websites they are bombarded with. Leo Lentz develops solutions to these problems in consultation with banks and insurance companies.

Intervening in an existing situation (action research)

In some cases, the desire to change an existing situation is an integral part of the study and of the research method. Research of this type is known as action research. This participative approach to research was developed by the social psychologist Kurt Lewin in the middle of the previous century. The idea is that if the researcher intervenes in the situation under investigation, this will help him to understand it better and generate knowledge about it. This is the basis of Lewin's principle: if you really want to understand something, try to change it.

Biofuel policy

Marc Schut from the Social Sciences department of Wageningen University [21] has been involved in several Research for Development programmes in developing countries. One of the topics he has studied is biofuel policy in Mozambique. Many investors are interested in the European marketing of biofuel derived from crops grown in Mozambique. The government of Mozambique wanted to develop a policy that would allow them to control these activities effectively. Marc Schut's PhD thesis dealt with the use of scientific knowledge in such policy development processes. He investigated these processes by introducing relevant scientific knowledge that was not known to policy-makers in Mozambique but was known by his colleagues and himself, and by reflecting on this input.

He concluded that the researcher needs to be embedded in the policy development process in order to have a substantial impact on it. This is important in order to be able to understand the dynamics of the process, and it may be a necessary bas for the performance of unconventional research roles such as facilitative involvement, fund-raising or support of multistakeholder processes.

Valorisation and the type of knowledge involved

Valorisation does not always involve the latest insights and the most recent research results. The knowledge exchanged can vary from the expertise of a single researcher to a combination of knowledge and insights from various disciplines. The different categories falling under this heading include the following:

- Knowledge developed in a collaborative project
- New research results suitable for a patent
- A great many results
- Combination of knowledge from various disciplines
- Techniques or data as an aid to research
- General knowledge of a particular discipline
- Expertise of a single researcher

Knowledge developed in a collaborative project

Researchers often work with government departments and other public bodies in externally funded projects and programmes such as contract research, projects organized by the Dutch STW Technology Foundation [18] or activities funded by Bsik (Besluit subsidies investeringen kennisinfrastructuur) and FES (Fonds Economische Structuurversterking). It is usually a condition of the funding in such cases that the researchers develop knowledge in collaboration with, and for, societal partners. In other words, valorisation is one of the objectives of the financing. The collaboration can be so close as to amount to joint knowledge development, where the researchers and their societal partners share responsibility for the project or programme, and jointly determine the research agenda, the composition of the research team, how the research results should be disseminated and what measures should be taken to ensure that the information reaches the intended stakeholders.

Sustainable Accessibility of the Randstad

Lori Tavasszy, professor of Freight Transport and Logistics in the department of Engineering Systems and Services at Delft University of Technology,[19] played a major role in the NWO programme Sustainable Accessibility of the Randstad in which several Dutch government departments also participated. He was project manager for a study of the future of freight transport in the Randstad.24 The deliverables of the study included greatly improved freight flow models that could be used as a basis for future policy development and innovation in this field.

New research results suitable for a patent

New insights and data derived from research represent an important source of knowledge. Patents are in some fields a very common way to transfer knowledge. One of the conditions for granting a patent is that the knowledge it embodies has never been published before – in other words, the patent must refer to a new invention, or to new knowledge.

One of the main reasons for applying for a patent is that the patent holder, or the holder of a licence derived from the patent, has an exclusive right to use the knowledge covered by the patent for commercial purposes for a specified number of years. Such intellectual property rights are essential in some branches of industry such as the pharmaceutical industry: without them, a company would not be able to develop new products and market them. A patent is thus a way of ensuring effective, secure development and application of knowledge.

Patented knowledge can be derived from a collaborative project with a commercial partner, who often applies for the patent on any valuable new knowledge generated. In other cases researchers may apply for a patent, even if there is no commercial party interested yet, so that their intellectual property is protected. This gives them the opportunity to allow other parties to make use of the knowledge under licence.

Study of Parkinson's disease

Mireille Claessens [20] and Ine Segers-Nolten [21] are researchers in the Nanobiophysics group at the University of Twente. Their research group received a subsidy from the Dutch Parkinson's Foundations to study the development of senile plaques. The presence of such plaques is an important sign of Parkinson's disease. The research group from Twente found, however, that some people had many plaques but hardly any symptoms of Parkinson's disease, while others had very few plaques but marked symptoms of Parkinson's disease. They are now able to distinguish different types of senile plaques and to perform measurements on them, and have developed a new toxicity test for senile plaques. They have made a provisional patent application for this test, in which they describe the new knowledge developed in their study.

A great many results

Researchers sometimes devote a great deal of energy to making large amounts of scientific knowledge and insights accessible to a lay audience, by translating the information into popular language and highlighting relevant points. The knowledge in question is often meaningful and/or valuable to the general public.

The Prostate Meter

The Prostate Meter (Prostaatwijzer in Dutch)(22) allows men who suspect that they may have prostate cancer to calculate their risk of actually having the disease on the basis of test results. The website also provides information on diagnosis and possible treatments. The Prostate Meter is a spin-off from the European Randomized study of Screening for Prostate Cancer (ERSPC), [23] which revealed that early detection can reduce mortality by nearly a third, but also increases the risk of "over-diagnosis". Cancers found by early detection often grow so slowly that they will probably never lead to serious complaints. The website mentions both sides of the medal: lower mortality, and higher risk of overdiagnosis, both caused by early detection.

Birth of a kingdom

Researchers at the Huygens Institute for the History of the Netherlands (Huygens ING) in The Hague developed a (Dutchlanguage) website entitled "The birth of the kingdom of the Netherlands: 1813 – 1815 in retrospect" in the run-up to the celebration of the bicentenary of the creation of the Dutch state [24]. The researchers expected that this event would arouse great public interest, and that they would be bombarded with questions about how exactly the kingdom of the Netherlands came into being. The website was developed as a proactive way of answering these questions. But the researchers' ambitions went further than that. They also focus on current historical views on the creation of the Dutch state to balance the opinions held in the past. Thus, the website does not restrict itself to the provision of factual information, but also teaches visitors to view their own history the way historians do nowadays.

Combination of knowledge from various disciplines

Researchers sometimes engage in interdisciplinary collaboration, for example if the knowledge, insights and methods available within a given discipline are insufficient to tackle a particular problem.

Such active collaboration to solve shared problems can lead to new insights. This kind of valorisation does not consist of just taking knowledge from one discipline and applying it in another, but in active combination of knowledge from different disciplines. Such collaboration often arises in response to a complex problem, often one with a major impact on society.

Test for Parkinson's disease

Medical researchers have long been looking for ways of using brain scans as a basis for the diagnosis of Parkinson's disease. Such research requires large numbers of brain scans from patients in many different hospitals. Care must be taken to protect the privacy of these patients, and to store the scan data in a safe, easily accessible way. Not many doctors possess the skills needed for these tasks. Prof. Jos Roerdink of the University of Groningen specializes in scientific visualization and computer graphics. He realized that methods developed to help astronomers process Big Data in the field of astronomy could also be useful in this medical research. This led to the setting up of a collaborative project. The objective of the Joseph Charles of the project, known as GLIMPS, [25] GLucose [Maging in ParkinsonismS, was to develop an effective test for Parkinson's disease.

Techniques or data as an aid to research

Researchers develop methods, techniques or infrastructures for their own use. Some of these may prove useful outside their own discipline. The world wide web is a well-known example: it was initially developed by researchers at CERN as an information management system for their own use. Data collected by researchers for their own studies may also prove interesting or useful to non-scientists. In all these cases, material initially developed as an aid to research is put to use in a wider field, often providing services to the general public.

Dutch Song Bank

The Dutch Song Bank (Nederlandse Liederenbank) [26] provides access to the lyrics and music of 170 thousand Dutch songs. The website gives search tips and browsing routes, from songs about murder and drinking songs via the top 30 street songs to the literary canon of the Dutch song – all with audio recordings where available. Louis Grijp [27] of the Meertens Institute for the study and documentation of Dutch Language and Culture (part of the KNAW) and his team developed this data bank as a basis for the study of Dutch song culture. They continue to add new data, full lyrics and music of songs, and audio recordings, to make the Song Bank an up-to-date source of data for their own research. The

Dutch Song Bank is one of the Meertens Institute databases that are available online, as are the Dutch database of First Names (Nederlandse Voornamenbank) [28] and the Dutch Dialect Bank (Nederlandse Dialectenbank) [29].

General knowledge of a particular discipline

Senior scientists sometimes pass on information not so much relating to their specific expertise, but to the wider discipline This information can be of important value to non-scientists. They can speak with an authority and an overall vision of the subject that makes them the right person to participate in public debate or to explain significant events.

The National IQ test

Margriet Sitskoorn, professor of Clinical Neuropsychology at Tilburg University, [30] plays a key role in the Dutch TV programme The National IQ Test. 36 She explains difficult concepts and shares basic psychological knowledge with viewers, participants and presenters, thus helping to disarm prejudice and elucidate what IQ tests actually measure.

Scientists can play a variety of different roles in the media, not just as representatives of an entire discipline like Margriet Sitskoorn but also as experts in a specialized field like Middle-East expert Bertus Hendriks from the Clingendael Institute in The Hague, or historian Beatrice de Graaf from Utrecht University.

Expertise of a single researcher

Researchers amass vast amounts of knowledge and insights over the years and thus become experts in their own field. They share this expertise with others frequently and in different ways – for example, as an expert in remedial teaching who joins the supervisory board of a youth care institution or as a computer scientist who provides a spin-off company with on-going support. This form of valorisation concerns the expertise built up by a particular researcher.

Pronunciation of English

Laura Rupp [31] is a Senior Lecturer in English Language and Linguistics at VU University Amsterdam, and studies English pronunciation, in particular the pronunciation of non-native speakers, and more particularly the pronunciation of English by native Dutch speakers [32]. She knows the kind of pronunciation mistakes Dutch speakers of English are likely to make. She shares this knowledge in various ways. She has written a pronunciation guide subtitled "Your Dutsj exent is bat for your selery". She judges the English of prominent figures in Dutch society who have been nominated for the Clear Language prize offered annually by the Language Centre of VU University Amsterdam,[33] and she gives workshops and training courses [34] on English pronunciation for professionals.

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Colofon

Consider This e-publication is an initiative of the Rathenau Instituut and part of the projects 'Valorisation as knowledge process' and 'Valorisation in the social sciences and humanities.'

Authors: Leonie van Drooge and Stefan de Jong Web-design: Herbert Boland Images: through the interviewees and Wikimedia

Please cite as: Leonie van Drooge and Stefan de Jong. <u>Valorisatie: onderzoekers dan al veel meer dan ze denken - eoublicatie met voorbeelden en handvatten om zelf valorisatie te organiseren.</u>The Hague: Rathenau Instituut, 2015.

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