An inspiring movement has emerged, but a lot still needs to happen

Scientific research funded with public funding derives its right to exist from its integrity, quality and social impact. Investigating the quality, integrity and impact of research is an important way of safeguarding this. Another approach is repeating key studies (replication studies). ZonMw and NWO have invested in that in recent years. The programmes Fostering Responsible Research Practices (FRRP, ZonMw) and Replication Studies (RS, NWO) have yielded interesting research results. Furthermore, a growing community of researchers has developed around these programmes who want to contribute to improvements in scientific research practice. During the morning programme, several engaging examples were presented.

‘If we fail to devote enough attention to responsible research practices and replication studies remain an exception to the rule, then eventually we will run the risk that people will quite rightly say that science is merely an opinion.’ Those were the opening words of the meeting’s chair Prof. Sjoerd Repping. Also, the programme chairs Prof. Eduard Klasen (FRRP) and Prof. Lex Bouter (RS) clearly stated that there is still a sense of urgency with respect to the quality and value of science.

At the same time, it has also transpired that the pessimists of several years ago have clearly been proven wrong. For example, replication studies have definitely proven attractive to top researchers. The “research into research” within FRRP, a unique program worldwide, has received both national and international recognition. That was apparent, for example, during the recent congress in Hong Kong about the integrity of scientific research. Dutch researchers attended this congress in large numbers and could present the results of empirical research. Bouter and Klasen expressed the hope that the momentum of recent years can be continued in the new programme. The artificial distinction between the FRRP and RS programmes, which is the outcome of what they refer to as a “bureaucratic accident”, should be removed in such a new joint programme.
What happens between the levels of the individual and the institution?

The large grey area between fraud and integrity that FRRP needs to tackle can be viewed at different levels. The individual researcher’s behaviour is important, especially if he or she is a role model. The knowledge institution can facilitate integrity or set other priorities. Dr Guus Dix from the Centre for Science and Technology Studies (CWTS) presented a study which revealed that the intervening area, the "culture", also merits attention.

The CWTS researchers spoke to a large number of administrators (including all deans from university medical centres), policymakers and senior researchers. In focus groups, both junior and senior biomedical researchers could give their opinion, and the researchers also studied relevant policy documents. Dix presented the most important conclusions in the form of two “lessons”. The first lesson concerned how we view (ir)responsible behaviour in science. Too strong an emphasis on the institutional level leads to bureaucratisation. And too strong an emphasis on the individual researcher who can make mistakes can lead to a culture of fear among (young) biomedical researchers. Sometimes that is already the case, according to Dix. Researchers are so scared of committing plagiarism that they also reword the methods sections each time. Deviations in the protocol, even if those can be well justified, are sometimes considered to be taboo.

Attention for the intervening area, the culture, concerns, for example, the transfer of knowledge and experience from senior to junior researchers and a research culture in which common sense sometimes curbs bureaucratisation. It also concerns discussing integrity issues at different levels of the organisation in a manner that encourages openness and sensible solutions.

Dix’ second lesson concerned the implementation of changes in organisations, for example through adjusting evaluation criteria and partnerships. Too strong an emphasis at the institutional level can lead to “paper tigers”, changes that appear to be incisive on paper but in practice have little effect. Too strong an emphasis on the individual level also results in moralism and unnecessary constraint. Attention for the culture can create room to allow actual changes to take place. That does, however, require an open dialogue over a longer period of time in which attention is paid to the opinions, interests, uncertainties and dependencies of the various persons involved. Dix’s examples revealed that changes within the organisation that must lead to improvements have a greater chance of success if attention is paid to both culture and dialogue. The research group will use an implementation grant from ZonMw to further implement their insights in research practice via the project SAGE: Stimulating Academic Gatekeeper Engagement.

Dix and CWTS director Prof. Sarah de Rijcke also recently published an article about the structure of evaluating and rewarding a subject that has a lot to do with responsible research (in Dutch):

www.scienceguide.nl/2019/11/anders-waarderen-is-nodig-maar-erken-de-moeilijkheden/
Ways in which knowledge institutions can contribute to integrity

The signing of the Netherlands Code of Conduct for Research Integrity by several major Dutch science organisations (KNAW, NFU, NWO, TO2 federation, Vereniging Hogescholen and VSNU) in 2018 was an important milestone. But how should knowledge institutions tangibly realise the duty to care established in this code? The INSPIRE study (Inventory in the Netherlands of Stakeholders’ Practices and Initiatives on Research integrity to set an Example) aims to itemise which initiatives exist and how effective these are. The ultimate goal is a toolkit for knowledge institutions that want to work on research integrity in both the Netherlands and beyond. The project, which is currently underway, will therefore contribute to the Embassy of Good Science [www.embassy.science]. Project leader Dr Fenneke Blom (VU Amsterdam) talked about the project’s progress.

Scientific integrity is more than just combating fraud. There is a spectrum that ranges from responsible research practice on the one hand to evident fraud on the other. Between those two extremes is a grey area that requires constant attention. Blom demonstrated how three important groups of factors influence each other in this: system factors (publication pressure, hypercompetitiveness, perverse incentives and huge “gain” for a small risk), cultural factors (inappropriate role models, not enough supervision, lack of guidelines, insufficient training) and individual factors (conflicts of interest, moral attitude, personal characteristics and the justification of misconduct). The set of instruments to facilitate scientific integrity should ideally focus on all three of these areas.

Blom’s presentation revealed a growing number of initiatives aimed at various aspects, such as data management, education, training and supervision. The INSPIRE project is using a checklist to classify and evaluate existing initiatives. Various methodologies will be used to obtain as complete a picture as possible of the ways in which scientific integrity can be advanced. The checklist helps to separate the wheat from the chaff so that it is clear precisely which aspects of integrity are facilitated.

It is also important to discover which factors facilitate the implementation of responsible research practices and which factors hinder this. After all, this is not merely an academic exercise but the concrete application and embedding of responsible research practices. A provisional conclusion is that many of the known initiatives mainly focus on the cultural factors, which is an interesting addition to the conclusions of the previous speaker. Therefore the intervening area already receives the necessary attention. It is important that the system and the individual do not escape the attention of researchers and policymakers in the coming period.

You can read more about INSPIRE on the website of the Netherlands Research Integrity Network (NRIN): https://www.nrin.nl/about/inspire-project/about-inspire/
Digital datasets and application in the humanities

Replication studies and the ideal of scientific transparency are not just issues in experimental research conducted within psychology and the biomedical sciences. The possibilities for replication and transparency are growing in the humanities too. Digital datasets are playing a key role in that claims Prof. Karina van Dalen-Oskam, Professor of Computational Literary Studies at the University of Amsterdam and Huygens ING.

Replication has always been possible in the humanities; researchers have regularly examined the conclusions of their predecessors in a critical light. The good habit of clearly stating sources has long been part of the research tradition in the humanities. Nevertheless, the idea of replication research has not yet really caught on within the broad and diverse group of disciplines that make up the humanities. That was partly due to practical reasons. If somebody makes statements based on years of research in archives in various cities, then it requires quite a bit of effort to study the sources again and examine whether another interpretation is possible.

With the advent of digital archives, it has become far easier to go back to the sources. Van Dalen-Oskam presented several digitised collections that are mouth-watering for anybody interested in history and literature. The correspondence of Constantijn Huygens, everything solicitors recorded about the voyages made to the northern city of Archangel, all of the decrees of the States-General in the initial years of the Eighty Years’ War, all issues of the Dutch literary magazine De Gids – all accessible with a simple click of the mouse.

However, these digital sources also require a new approach. And that has now arrived: the Common Lab Research Infrastructure for the Arts and Humanities (CLARIAH), a distributed research infrastructure for the humanities. Via this infrastructure, researchers not only have access to large collections of digital data and applications for processing these, but the data and applications are also managed sustainably. Nowadays, humanities researchers can test hypotheses behind their laptops without the risk of incurring a dust allergy in old archives. The application possibilities are staggering. As an example, Van Dalen-Oskam stated that the authorship of a text written under a pseudonym can now be established by comparing the text with published texts of other authors. However, the new approach in the humanities, the digital humanities, also means a radically different way of working. Whereas previously, the emphasis was on the individual researcher, collaboration and exchange have now become far more important. New possibilities are arising for conceptualisation, formalisation and modelling. All of these innovations are vitally important for the quality, integrity and societal impact of the humanities.

CLARIAH can be found at www.clariah.nl. Much of the data discussed can be found at www.huygens.knaw.nl and at www.dbnl.nl (in Dutch)
Does the size of the pupil reveal our visual interest?

Repeating a classic experiment using modern tools is an interesting challenge that yields researchers much new information. That also applies if the original outcome cannot be repeated, as was clear from the entertaining presentation given by Dr Joost de Winter, a researcher in the field of cognitive robotics at TU Delft. His team tried to replicate the findings of the American professor Eckhard Hess from 1960 that pupil size is influenced by what we are interested in. Hess found, for example, that the pupils of men dilated if they saw images of female nudity and the pupils of women dilated if they saw images of a baby or male nudity.

De Winter investigates various things, such as the influence of time pressure and the complexity of traffic situations on driving behaviour and the physical (physiological) reactions of the driver. A highly cited *Science* publication of Hess gave an interesting lead concerning the information hidden in a person’s pupil diameter. After all, the pupil diameter can be established using a digital camera. In practice, however, this approach proved not to work. Our pupils mainly respond very strongly to small differences in brightness; an extra change under the influence of stress while driving is negligible compared to this.

The researchers became interested in the work of Hess and wondered whether the findings of the American psychologist could be confirmed by repeating the experiment using modern measurement equipment. Fortunately, the University of Akron, Ohio possesses an archive in which the history of the psychology research is documented. A search in an impressive pile of archive boxes yielded the original experimental design and data of Hess. To start with, this revealed that Hess was selective in the reporting of his findings. He only included the five pictures with a clear effect in his publication. De Winter also showed that Hess has acted as a consultant as well and might therefore have had an interest in the effect he had found.

In the replication study, no differences in pupil diameter were found between men and women when they looked at, for example, erotic images of women and men, respectively. However, light and dark in the image did have a very clear effect on pupil size. Whoever looked at a lighter part of the image had more constricted pupils than whoever looked at a darker part. In a second replication, complete with preregistration, De Winter and his colleagues used line drawings in which the brightness of the entire image was the same. In this study, they did find pupil dilation when the study subjects looked at exciting pictures, but there were no significant male-female differences in pupil dilation. It is therefore highly likely that this famous publication in *Science* demonstrated facts attributable to chance factors and not to a male-female difference in visual interest. De Winter concluded that this had been an exciting and challenging exercise, which was certainly worthwhile repeating. Therefore his message was to ‘make replication mainstream’.
Discussion about bottlenecks and solutions

As the chair of the meeting Repping had already announced in his opening words, the meeting had an active character. The participants took part in thematic discussion groups in which they searched for bottlenecks and solutions. The discussion group about vision and strategic policy emphasised the importance of motivating the work floor and called upon the group about governance and management to produce measures for better data management and to counteract bureaucracy. The discussion group about involving research groups in promoting responsible research discussed ways of breaking the “bubble” of pioneers with a positive approach.

‘Do not forget the differences between scientific disciplines’

The discussion group about vision and strategic policy established that a broad discussion is now taking place within knowledge institutions about promoting responsible research practices. Key concepts such as FAIR data, talent and Open Science keep cropping up in vision and policy documents. However, care needs to be taken to prevent an overly simple top-down imposition of initiatives. The work floor must be convinced about the merit of the measures if these are to be implemented successfully. It is therefore important to hold discussions about responsible research practices on the work floor and to provide room for bottom-up initiatives.

If we want to make FRRP an integral part of science then we should start with training students and PhDs to critically reflect upon and discuss this theme. Supervisors and mentors have an important role to play in this. After all, they also act as role models for the next generation of researchers. Therefore supervisors and mentors also need to be trained so that they are prepared for this task and for exhibiting exemplary behaviour. If the researchers who act as role models for students and PhDs not only convey the FRRP values but also exhibit these in their daily work, then a generation of researchers will grow up for whom responsible research is self-evident.

Another important theme in this discussion group was the differences between disciplines. A lot of FRRP research has taken place in a biomedical context, whereas many replication studies have taken place in psychology. The conclusions from these disciplines are not by definition relevant for other scientific domains because these have a very different scientific context. Furthermore, certain ideals from Open Science are mainly relevant for experimental sciences, which means problems will be encountered if these are applied in the humanities, for example. Preregistration is a good example of this; in the humanities that would lead to no effect or possibly even a negative effect. Therefore what constitutes good sciences needs to be carefully examined per context and discipline.

Another comment was that research groups must learn from their mistakes. Making mistakes is not a problem as long as these lead to improvements. There was also a warm call within this discussion group for a less hasty approach to research (slow science): research projects that may have a duration of more than two or three years.
‘What can we learn from integrity management in other sectors?’

The discussion group about governance and management came up with several recommendations for directors who want to improve the scientific integrity in their knowledge institutions. The group advised taking a look at other sectors, such as healthcare, the police and accountancy in which policy to facilitate integrity has also been developed in recent years. On the one hand, it concerns the development of guidelines and protocols and, on the other, the implementation of these at the group and individual levels.

Data management is another important theme, and in this due consideration should also be given to differences between disciplines. Data for an anthropologist are not the same as data for an experimental psychologist or an immunologist. Data from one context (for example, healthcare) are not automatically applicable in another context (science). That also applies to the reuse of data collected in a different study. This problem can partly be solved by using metadata, but it remains a point of concern.

The group considers infrastructure and bureaucracy to be important bottlenecks that need to be tackled. Researchers can be expected to show commitment, but they should not have to organise everything themselves. The more organisations want to get a grip on integrity, the greater the amount of bureaucracy, as a result of which researchers need to jump through different hoops with different criteria for the grant application, data plan, ethical assessment, et cetera. Integral policy and support can help to solve this problem. The researcher must be better supported with expertise in the areas of data management, methodology, integrity and ethics. Funding bodies and management should also jointly safeguard the independence of research, especially in the context of public-private partnerships.

Finally, the theme of recognising and rewarding was considered. The Netherlands leads the way in this area. According to the group, it is, however, important that recognition and rewarding are properly integrated with Open Science, scientific integrity and societal relevance.
‘With incentives and clear boundaries the people outside of the “FPPR bubble” can be reached.’

In the discussion group focussed on involving research groups and advancing responsible research (FRRP), a wide range of bottlenecks emerged. Policymakers, fundamental researchers and more practice-oriented researchers use different definitions and applications of the term responsible research. The hierarchy can be a problem, as a result of which the discussion about FRRP sometimes only seems relevant at the top of the research group. The group of people who are actively involved with FRRP sometimes form their own bubble. For the group of researchers outside this bubble, the issue is less current. So considerable gains can still be made by communicating clearly about this.

The solutions put forward were also diverse. There should be greater attention for young researchers and an emphasis on positive aspects of opportunities and improvement and less emphasis on the various crises in science (replication, relevance). An unequivocal message is needed, but it should take the differences between disciplines into account. A broad communication strategy is required that covers everybody, but with extra attention for those people in research groups who are intrinsically motivated to initiate changes. And above all else the necessary patience, as changes quite simply cost time.

There was also an interesting discussion about the conditions needed for improvement. A suggestion was made to offer researchers more reflective information and so in this way, encourage them to reflect upon their own research practice. One way of making the incentives tangible is to involve the FRRP aspects in the assessment criteria for individuals (SEP) and projects (granting bodies). An open culture with open work discussions in which there is attention for FRRP aspects should be rewarded at various levels, whereas groups that fail to do that can expect a sanction. However, we should not lose sight of the international context. The Netherlands might be leading the way, but striving for responsible research can also have a constrictive effect. Further FRRP research in a wide range of disciplines can support and strengthen the entire process. Lastly, it is important to ensure that the new incentives do not become a goal in themselves as happened with the impact factor or the h-index.
Greater attention for young researchers and society

The transformation process that must facilitate the integrity, quality and relevance of science is already underway but takes time. The new generation of researchers should be carefully listened to, as they need to implement the ideals in practice. Involving the citizens who must benefit from the outcomes of science more in the scientific process will increase the relevance of science. ZonMw already has experience of that. These are a few of the outcomes from the closing podium discussion with programme chairs Bouter and Klasen, Prof. Chantal Kemner, member of the NWO Social Sciences and Humanities Domain Board, and Dr Martijntje Bakker, interim director of ZonMw.

Transformation processes cost time. What is almost a cliché for the advance guard is still new and unfamiliar for many. In recent years, a lot has been initiated thanks to the programmes FRRP and Replication Studies as well as initiatives such as Open Science, FAIR data and a broad movement in which science and society are entering into a dialogue with each other, for example in the context of the Dutch Research Agenda. Maintaining this movement requires more research into research and more space for replication studies, also in standard research programmes. Universities and universities of applied sciences have their own responsibility concerning replication studies as well as in a broader sense concerning the structural embedding of responsible research practices and the assessment of researchers and research groups.

PhDs and postdocs are vitally important for the necessary transformative processes; at the same time, they are at a point in their career where they as yet have little influence. Furthermore, it is good to realise that a considerable proportion of PhDs will work outside of science after their PhD graduation. The disadvantage of that is that knowledge and involvement flow out of the science domain. However, a possible advantage is that the connection with industry, healthcare and other societal sectors is strengthened.

NWO, ZonMw and other research funding bodies can play an important role in stimulating change, for example by attaching clear requirements to research funding, by continuing to fund research into research and by calling upon their own funders (Ministry of Health, Welfare and Sport, Ministry of Education, Culture and Science, etc.) to fund replication studies and slow science (projects with a longer duration).
Afternoon programme

The current state of affairs and the future – position paper “Promoting Responsible Research Practices”

The movement initiated in recent years has not yet been completed. Facilitating responsible research practices will also require efforts in the coming years from researchers, administrators and policymakers. The afternoon programme focused on the position paper in which four young researchers give their vision about the current state of research into Responsible Research Practices (RRP) and the most important points that a future funding programme could focus on. After a presentation from one of the authors, the participants discussed in workgroups the three levels distinguished by the paper: scientific frameworks, the system of science practice and the empirical cycle. A fourth discussion group considered the entire scientific ecosystem.

Dr Joeri Tijdink, psychiatrist and assistant professor Metamedica (Amsterdam UMC, location VUmc) provided a summary of the position paper in his presentation. The paper, written by him and three other researchers at the start of their career, describes the current state of affairs in the area of RRP and the research themes that future RRP research should focus on. First of all, their inventory of initiatives gave cause for optimism; the authors described a broad landscape of activities aimed at various aspects of scientific practice.

Schematic representation of the elements of responsible research practices
The empirical cycle is at the centre of the figure. Here, there is growing attention for replication, the preregistration of research protocols and broad collaborations in which data is shared. Statistical and other innovations contribute to the quality of scientific research. For example, the program Statcheck can detect statistical errors in psychology publications, and the use of preprints or improved registration of research in the Open Science Framework has led to greater transparency, as a result of which errors and fraud can be recognised faster. On social media, there is also a critical discussion about published results.

In the surrounding ring in the figure, the system of science practice, the integrity code has become active, for example, and knowledge institutions have deployed various initiatives for the training and evaluation of researchers. In the Netherlands, research funding bodies also play an active role, for example the programmes FRRP and Replication Studies as well as their contributions to discussions about recognising and rewarding.

The outermost ring in the figure, scientific frameworks, contains the three interrelated themes Open Science, societal impact and research integrity. The importance of these themes is increasingly clearly recognised, not just in the Netherlands but elsewhere too. The Netherlands has a pioneering role in this area.

Themes that require more attention

The position paper state six most important themes for future research and policy:

1. The recognising and rewarding of research and researchers that are focused on RRP.

   The current system for evaluating researchers and research proposals still contains too many perverse incentives with too strong an emphasis on bibliometric assessment and relatively little emphasis on other important academic activities. Further research is needed in this area to determine which system of recognising and rewarding can assess all academic qualities whilst also providing room to reward RRP and to prevent undesirable research practices.

2. The influence of Open Science and transparency on RRP

   Also, the interaction between Open Science, transparency and RRP merits further research and the critical consideration of the underlying concepts and assumptions. For example, do preregistration and the sharing of data indeed lead to a reduction of the publication and reporting bias? Will more negative and neutral results actually be published in the future?

3. Research into RRP-focussed mentorship, supervision and role models

   That good mentors are worth their weight in gold for the development of responsible research practices among young researchers and that poor supervision is harmful, is accepted by the authors without further research. However, according to them, there is still too little clarity about what good mentorship involves and how harmful practices can be recognised and stopped on time.

4. The effect of education and training on RRP

   Education and training are generally seen as important instruments for encouraging RRP. However, there is still too little scientific evidence for this. Existing research has mainly focused on junior researchers, and the long-term outcomes of this training have not yet been investigated enough.
5. Focus on the reproducibility of workflow and analyses
Further research and explorative studies are needed to determine how the practice in this area can be improved and how researchers can be encouraged to share data analysis methods and other relevant materials with their peers so as to simplify reproducibility.

6. A peer review focussed on RRP and honesty
Although peer review is one of the cornerstones of current scientific practice, it has scarcely been investigated. It is a black box in which a wide range of undesirable issues can occur, such as conflicts of interest, dishonest procedures, coincidences and inconsistencies, and strong doubts about the quality of peer review exist. An honest peer-review process is desirable but still a far way off.

The most important summarising conclusion from the authors is that the urgency of “research into research” is still very high. The debate about responsible research in academic circles and the critical voices about the role of science in society make this clear. The authors therefore call upon all involved to actively contribute to initiatives and programmes in this area.
Broader, smaller peer review and more – critical notes on the position paper

The position paper forms a strong foundation for further thinking about the future. There was a broad consensus about that in the workgroups. However, it was felt that certain aspects of the paper could be improved. The paper is currently based too much on empirical research in the biomedical sciences and psychology. However, the balance between inclusivity and recognisability needs to be maintained. Also, the role of various players can be considered more specifically: researchers, knowledge institutions, publishers, funding bodies, other interested parties (patients, companies, et cetera). A brief summary of several lively discussions.

In the group that discussed the framework, a call for a more inclusive use of language was made. The requirement of replicability cannot be realised by a humanities researcher, as a result of which researchers from those academic disciplines can become estranged from the objectives in the paper. Another comment concerned the relationships between the elements of in the figure. The various aspects sometimes strengthen each other, but they can also counteract each other (for example, open data versus privacy). Much depends on how it is viewed and read; if it is a matter of ticking things off, then vital aspects will fail to receive sufficient attention. The efforts to realise RRP are still limited to a small group of pioneers. Therefore care needs to be taken that this does not remain a “bubble” with its own jargon or even an ivory tower that fails to maintain sufficient contact with the scientific work floor. The role of funding bodies and the effect of their actions also merit further research.

In the group that discussed the science system, a lively discussion arose about the responsibilities of the various players. There is a mutual dependency between researchers, knowledge institutions, funding bodies and scientific publishers. That can have a crippling effect if people wait for each other to take action. Dialogue and an active attitude are therefore required from all involved. Realising a system change requires the courage to be the first to take a step. Therefore each party has a role to play in getting the entire system moving and maintaining that momentum. For example, the evaluation of researchers is receiving growing attention within knowledge institutions, and this is an important step. In the entire science system, the role of publishers must also be explicitly stated and investigated. This discussion also considered the tension between inclusivity (giving due consideration to all forms of science practice so that everyone can recognise themselves in the narrative) and concrete objectives (a text that calls for actions in clearly predefined areas).

In the workgroup about the empirical cycle, it first of all emerged that the cycle described in the paper does not reflect the reality of most scientific studies. For example, explorative research has a different setup than confirmatory research. Sometimes there is also far more emphasis on technology, such as the synthesis of chemical substances. The process of peer review was also extensively discussed. Many innovative developments are taking place in this from a form of peer review on the methodology, via preprints (that in physics, for example, has led to an enormous reduction in the number of papers finally published) to the critical discussion about published papers that is now often conducted via social media. A subject that still needs to be further investigated in various academic disciplines is the process of formulating hypotheses and how alternative hypotheses are excluded. This might be related to the conflicts of interest that often already lead to a more limited examination of possible hypotheses. Whoever has a direct or indirect interest in all treatments coming from the pharmaceutical industry will not be easily inclined to do research into the effect of jogging or losing weight on a certain condition.
The fourth discussion group considered all aspects that do not belong in the three “rings” of the position paper. In this group, it was stated that there is currently quite an emphasis on policy formulated form the top down in which it is not sufficiently clear what it means for the everyday practice of (young) researchers. For example, a lack of clarity about a new way of recognising and rewarding researchers can lead to uncertainty. An example is the call for open access publications, whereas in practice, the researcher is still assessed against purely bibliometric criteria when it comes to decisions about the promotion or the awarding of a tenured contract, for example. Another element that emerged in this discussion was a possibility to learn from other societal domains where integrity and social relevance are policy priorities, such as the police and healthcare. The discussion ended with the question to funding bodies, such as NWO and ZonMw, about the extent of their commitment. Are they actually prepared to reward good behaviour and to punish undesirable behaviour (for example, failing to publish research results via open access papers)?