



Technology and ethics should go hand in hand when it comes to innovation. That is the notion behind the research programme of NWO, the Netherlands Organisation for Scientific Research, into the theme of Responsible Innovation (MVI). The sixteen studies of the MVI programme, where arts, science and social sciences meet, specifically address technological innovations that may have a dramatic positive or negative effect on individuals and society. Projects in the fields of biotechnology, ICT, nanotechnology and neural sciences play a particularly important part.

Dutch scientists are less cut off from the rest of society than their colleagues abroad, claims Professor Armin Grunwald, chairman of the Advisory Board for the Responsible Innovation programme. The Netherlands is the cradle of ethical and pragmatic innovation, as he knows from experience.

It is leading the way globally. 'The Netherlands was one of the first countries where ethics was a major factor early on,' says the Professor of Philosophy and Ethics of Technology at the Karlsruhe Institute for Technology. 'Over the past twenty years, responsible innovation has slowly been gaining ground in Europe and the United States. Nevertheless, more attention is devoted to this issue in the Netherlands than in other countries.'

What sets us apart in particular is our tradition that ethics are incorporated into the design process. This is the boast of the programme, and rightly so, Grunwald feels. 'In Germany, where I work, this is completely different. With us, ethics is a field that is far removed from the designers,' the German says. 'Ethicists and designers both use their own jargons and have their own areas of expertise. In Germany, there is little communication between the two groups, and whenever they do in fact talk, the result is two groups of people speaking in different languages. In the Netherlands the gap is much smaller.'

That is why Grunwald considers himself to be something of a curiosity in Germany. He did not study philosophy or psychology, but physics. He is one of the few German scientists who consider ethical issues in connection with technology. 'I was never concerned with ethics, neither as a student, nor when I worked. It began when I started working as a software developer on a project constructing the airport of Munich in the 1980s. That new airport was put up somewhere where no airport had been before. Nearby residents were unhappy, but nobody listened to them. I felt that they should have been able to express their views during the design process and that their views should have been taken into account. Since then, ethical issues concerning technology have been very important to me.'

As chairman of the Advisory Board – responsible for the scientific selection of the applications – Grunwald thought it remarkable how much influence the Societal Panel had. 'They had a large say in the evaluation of the initiatives. That forced everybody submitting an application for a programme to present a proposal that will actually have an impact in the real world. And it meant that the Advisory Board could not select applications that were based solely on an academic approach. It is a unique process for societal relevance to have so much influence, it was like nothing I have ever seen anywhere else in the world. It would be inconceivable in Germany. For me, it was extremely important that the opinions of the Societal Panel weighed so strongly in this programme. Scientists tend to consider the implications of their research from their ivory towers, and their ideas are often wrong. Now they are forced to talk to people from the field to see what is relevant. And they are working together with people from other types of disciplines, such as psychologists and ethicists. This will allow their initiatives to truly make a difference by incorporating ethical issues in the design process.'

Armin Grunwald: The Netherlands is leading the way in terms of pragmatism and ethics.



Prof. dr. Armin Grunwald

The commotion surrounding the Electronic Patient File system, CO₂ storage beneath a residential area and the rejection of smart electricity meters is unnecessary. In many cases engineers can solve these difficulties by taking account of ethical aspects in the design process, claims Professor Jeroen van den Hoven, chairman of the Responsible Innovation Programme Committee and Professor of Ethics and Technology at Delft University of Technology.

Van den Hoven is horrified by the multitude of examples of technological developments failing because they did not consider possible ethical objections. 'Take the proposal that everybody be required to have a smart electricity meter installed in their homes for example,' he says. 'That is an excellent initiative for saving energy. But the proposal ground to a halt in the Dutch Senate because the system did not take sufficient account of users' privacy. A truly smart meter would have taken the aspect of privacy into account. Too often, designers do not think about the ethical difficulties connected to their innovations until it is too late. The Electronic Patient File system is another feast of missed opportunities in that regard. IT people focused too closely on systems and software, whereas they should also have considered the confidence of doctors and individuals in such a system. People should take these matters more seriously, since they help to determine the success of a design.'

It is much more difficult and more expensive to make changes after the fact. That is why it is important to take ethical issues into consideration during the design process, he recommends. 'Responsible Innovation deals with precisely how to do this. Using concrete research, we hope to demonstrate how ethics can be factored in early on in the design process. It is important for multiple disciplines to work together. For example, in our programme engineers are teaming up with behavioural scientists, economists, psychologists and ethicists. This is the twenty-first century, applied science is very important to society. That means that it would be very wise to involve ethics. We hope to create a critical mass of researchers to achieve this.'

Van den Hoven mentions a plan put forward by Shell to store CO₂ in an empty natural gas field beneath Barendrecht. 'Residents are concerned that the value of their houses will suffer. The discussion is not purely about technology, although it is very important for the project's success. In such a situation, I would recommend looking at the entire system and not just focusing on geophysical matters. Think about positive incentives, for example. Give residents a discount on their energy bills because CO₂ is being stored beneath their homes. Now it is very uncertain whether that plan will ever become reality, whereas people could have gauged the residents' responses much earlier and looked for a fair design for the system.'

Many engineers think that ethics present a problem, Van den Hoven believes. 'Science studies are highly specialised. It is difficult to master a technical study, it takes a great deal of time. But it is also important to think about responsibility for the consequences of a design, for the obvious moral reasons as well as based on considerations of efficiency. With the Responsible Innovation programme, we are showing how engineers can approach this task.'

Jeroen van den Hoven: Ethical nonchalance is causing technology to fail needlessly



Prof. dr. Jeroen van den Hoven

Responsible Innovation (MVI) is an alliance between the NWO divisions for Humanities and Social Sciences, WOTRO Science for Global Development, Technology Foundation STW and ZonMw, the Ministry of the Interior and Kingdom Relations, the Ministry of Foreign Affairs, the Ministry of Defence, the Ministry of Agriculture, Nature and Food Quality, the Ministry of Education, Culture and Science, the Ministry of Health, Welfare and Sport.



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